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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/474,299	12/29/1999	MARCEL F.C. SCHEMANN	FSP0228	2088
7590	11/22/2006		EXAMINER	
FSP LLC			KIM, DAVID S	
Attn: Charles A Mirho				
P. O. Box 890			ART UNIT	PAPER NUMBER
Vancouver, WA 98666-0890			2613	

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/474,299	SCHEMMANN ET AL.
	Examiner	Art Unit
	David S. Kim	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 September 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 42-57 is/are pending in the application.
- 4a) Of the above claim(s) 44 and 45 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 42,43 and 46-57 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 December 1999 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner: Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### Election/Restrictions

1. Newly submitted **claims 44-45** are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

In a previous response, Applicant elected Species 4 (filed on 10 March 2003), which corresponds to the embodiment shown in Fig. 11. Accordingly, the newly submitted claims should read on this embodiment.

Notice the electrical up-converter FC 821 in Species 4, Fig. 11. The specification discloses that FC 821 receives input electrical signals in a band of **100-200 MHz** and outputs electrical signals in a band of 400-600 MHz or in a band of 600-900 MHz (emphasis Examiner's).

In contrast, claim 44 discloses an electrical up-converter that receives input electrical signals **below 100 MHz**. Also, in contrast, claim 45 discloses an electrical up-converter that receives input electrical signals with a carrier frequency is approximately **between 5 and 65 MHz**. Since neither of these ranges are within the band of **100-200 MHz**, as shown in Species 4, Fig. 11, claims 44-45 are directed to a non-elected invention.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, **claims 44-45 are withdrawn** from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

**Regarding claim 44**, consider the following limitations:

“at least one optical-to-electrical signal converter configured to convert received optical signals into *received electrical signals*;...

at least one electrical up-converter configured to increase the carrier frequency of *received electrical signals* by **a factor of approximately two** when the carrier frequency of the received electrical signals is below 100MHz" (emphasis Examiner's).

When the carrier frequency of the *received electrical signals* is below 100MHz (e.g., Fig. 1, 5-50MHz inputs to optical upconverter 185), none of the figures shows an increase of the carrier frequency by **a factor of approximately two**. However, the figures do show an increase by a factor of **at least** approximately two. As a remedy, if the claim language were amended to state an increase by a factor of **at least** approximately two, then this objection would be overcome.

**Regarding claims 49-57**, independent claim 49 discloses the combining of a first upconverted multicarrier signal with carriers in a first frequency band and a second upconverted multicarrier signal with carriers in a second frequency band into a single outbound multicarrier signal, *wherein a minimum frequency of any carrier in the second frequency band being at least two times higher than a maximum frequency of any carrier in the first frequency band*. However, none of the figures shows this relationship. Additionally, dependent claims 50-57 disclose more detailed variations of this combining. As the generic combining of claim 49 is not shown in the figures, it follows that the more detailed variations of this combining of claims 50-57 are also not shown in the figures.

4. The drawings are objected to because **Figs. 13-14** do not appear to match the specification. That is, the specification discloses that stimulated Raman scattering (SRS) increases as frequency decreases (p. 5, l. 21-24). However, Figs. 13-14 show the opposite relationship: SRS increases as frequency increases.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the

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filings date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

**Claim Rejections - 35 USC § 112**

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. **Claims 42-43 and 46-57** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Regarding claims 42-43 and 46-48**, notice the following three limitations from independent claim 42:

(1) "the up-converted electrical signals are converted back to optical form, multiplexed with other optical signals, and transmitted over an optical fiber, *where an amount that the carrier frequency is increased depends on the carrier frequency of the received electrical signals*" (emphasis Examiner's).

(2) "at least one **electrical-to-optical converter** configured to convert the up-converted electrical signals to optical form; and

at least one **modulator** configured to modulate up-converted **electrical signals onto light**" (emphasis Examiner's).

(3) "at least one **modulator** configured to modulate up-converted electrical signals onto *light of different wavelengths and into different frequency bands* each less than one octave wide" (emphasis Examiner's).

Limitation (1) introduces new matter to the teachings of Species 4, Fig. 11. Limitation (1) states that the **amount of upconversion is dependent on the carrier frequency of the received**

**electrical signals.** However, such is not the case in Fig. 11. Notice that Fig. 11 includes two amount of upconversion: 100-200 MHz to 400-600 MHz and 100-200 MHz to 600-900 MHz. If the amount of upconversion were dependent on the carrier frequency of the received electrical signals, one would expect two different input ranges of frequencies to correspond to the two different output ranges of frequencies. However, there is only one range of input frequencies to correspond to the two different output ranges of frequencies in Fig. 11. Accordingly, limitation (1) constitutes new matter. As a remedy, Examiner respectfully suggests the removal of limitation (1) from the claim language.

Limitation (2) introduces new matter to the teachings of Species 4, Fig. 11. Limitation (2) introduces **two** components that transform electrical signals to optical signals (“optical form”/“light”). However, Fig. 11 only shows one transmitter 822 that performs this transforming. Accordingly, limitation (2) constitutes new matter. As a remedy, Examiner respectfully suggests amending the claim language so that the “electrical-to-optical converter” is further described by the limitations of the “modulator”, so that it is clear that **one** component transforms the electrical signals to optical signals.

Limitation (3) introduces new matter to the teachings of Species 4, Fig. 11. Limitation (3) discloses that **one** modulator modulates electrical signals onto light of **different wavelengths** and into **different frequency bands**. However, Fig. 11 shows that each modulator (transmitter 822) only modulates electrical signals onto light of one wavelength and into one frequency band. That is, for light with a plurality of different wavelengths and a plurality of different frequency bands, Fig. 11 requires a plurality of modulators. Accordingly, limitation (3) constitutes new matter. As a remedy, Examiner respectfully suggests amending limitation (3) so that a **plurality of modulators** modulates electrical signals onto light of different wavelengths and into different frequency bands.

**Regarding claims 49-57**, independent claim 49 discloses the combining of a first upconverted multicarrier signal with carriers in a first frequency band and a second upconverted multicarrier signal with carriers in a second frequency band into a single outbound multicarrier signal, *wherein a minimum frequency of any carrier in the second frequency band being at least two times higher than a maximum frequency of any carrier in the first frequency band*. However, none of the figures shows this relationship. Furthermore, the specification does not disclose this relationship either. Additionally,

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dependent claims 50-57 disclose more detailed variations of this combining. As the generic combining of claim 49 is not disclosed in the figures and in the specification, it follows that the more detailed variations of this combining of claims 50-57 are also not disclosed in the figures and in the specification.

Accordingly, claims 49-57 contain new matter.

Additionally, **regarding claims 49-57**, notice the following limitation from independent claim 49:

“at least **one modulator** to modulate the carriers of the **first and second multicarrier signals** with the same information used to modulate the carriers before upconversion” (emphasis Examiner’s).

This limitation discloses that **one** modulator modulates the carriers of a **plurality of multicarrier signals**. However, Fig. 11 shows that each modulator (transmitter 822) only modulates the carriers of one multicarrier signal. That is, for a plurality of multicarrier signals, Fig. 11 requires a plurality of modulators. Accordingly, this limitation constitutes new matter. As a remedy, Examiner respectfully suggests amending this limitation so that a **plurality of modulators** modulates the carriers of a plurality of multicarrier signals.

#### Response to Arguments

8. Applicant's arguments with respect to new claims 42-57 have been considered but are moot in view of the new ground(s) of rejection. Applicant cancelled all previous claims 1-41 and submitted new claims 42-57 in the most recent response (filed on 14 September 2006). However, new claims 44-45 have been withdrawn and new claims 42-43 and 46-57 have been rejected with new grounds of rejection under 35 U.S.C. 112, first paragraph. Accordingly, Applicant's arguments are moot.

#### Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date

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of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK



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